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Description of the last larval instar of *Acanthagrion hildegarda* (Odonata: Coenagrionidae)

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■ **ABSTRACT.** The last larval instar of *Acanthagrion hildegarda* Gloger, is here described and compared to the other known larvae of this genus. It differs from them mainly in number of palpal and premental setae.

KEY WORDS. Odonata. Coenagrionidae. *Acanthagrion*. Larva.

■ **RESUMEN. Descripción del último estadio larval de *Acanthagrion hildegarda* (Odonata: Coenagrionidae).** Se describe el último estadio larval de *Acanthagrion hildegarda* Gloger y se lo compara con las restantes larvas conocidas para el género. Difiere de ellas principalmente en el número de setas palpales y prementonianas.

PALABRAS CLAVE. Odonata. Coenagrionidae. *Acanthagrion*. Larva.

INTRODUCTION

The neotropical genus *Acanthagrion* Selys is composed by nearly 40 species, eight of these are recorded in Argentina (Muzón & von Ellenrieder, 1998). At present the last instar larva of only four species is known: *Acanthagrion adustum* Williamson, *Acanthagrion indefensum* Williamson, *Acanthagrion luteum* Rácenis, and *Acanthagrion quadratum* Selys (Geijskes, 1941, 1943; Muzón, 1995; Westfall & May, 1996).

Acanthagrion hildegarda Gloger (1967) is presently known in Argentina and Uruguay, mainly from small streams of the Paraná river basin; nevertheless, there are few records from northern Córdoba, Argentina (Rodrigues Capítulo & Muzón, 1989).

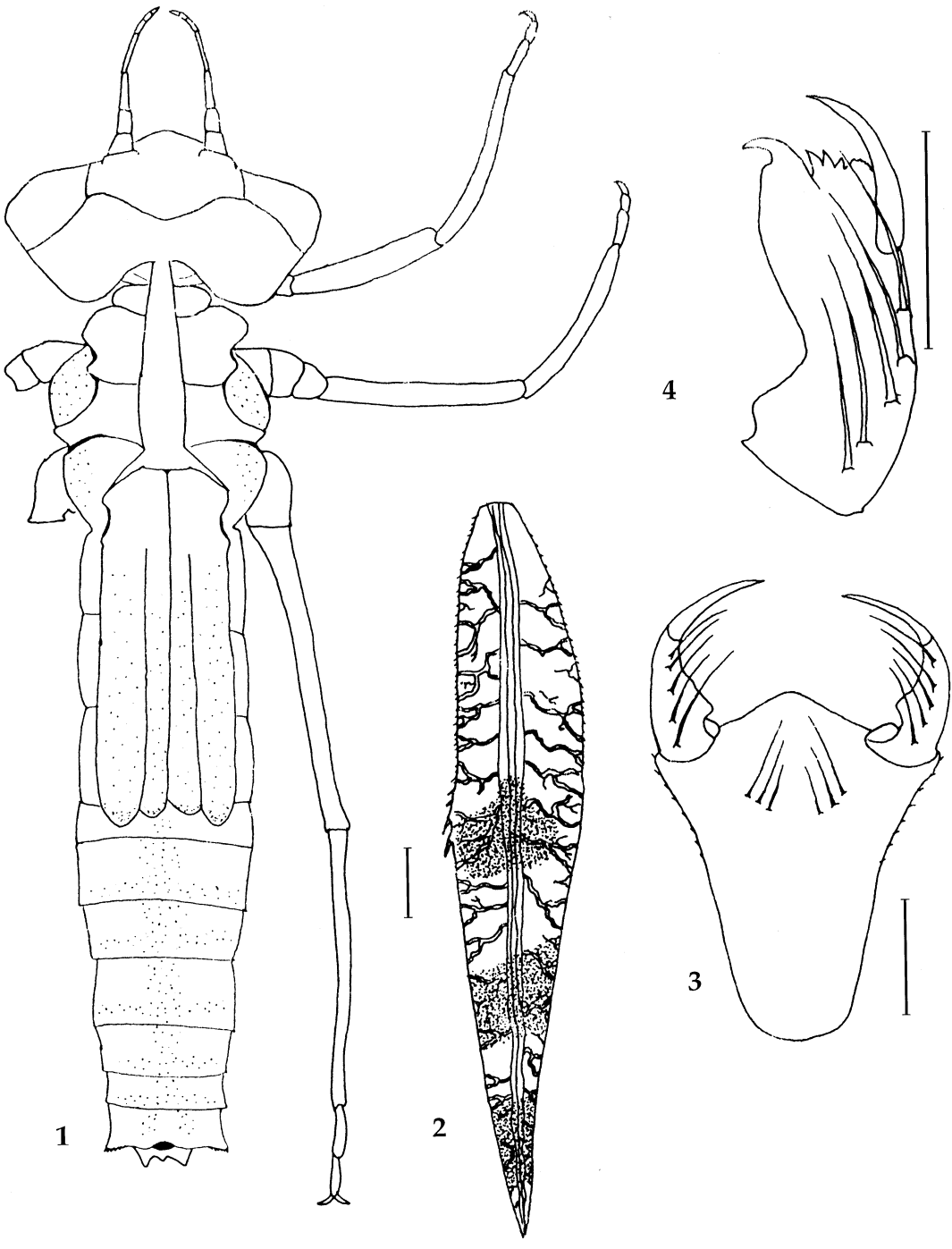
In the present study we describe the last larval instar of *Acanthagrion hildegarda* based on reared specimens from Buenos Aires province, Argentina, and compare it with the other known larvae of this genus.

MATERIAL AND METHODS

Material examined. ARGENTINA. Buenos Aires: Punta Indio, El Destino stream at Provincial Route 11, 35° 8'15" S, 57° 23' 38.3" W, 25-XI-1998, J. Muzón & N. von Ellenrieder leg., 1 male last instar exuvia; Punta Indio, stream at Provincial Route 11, 1.5 km N of La Matilda stream, 35° 20' 35.8" S, 57° 11' 3.9" W, 25-XI-1998, J. Muzón & N. von Ellenrieder leg., 1 male last instar exuvia. Both specimens were reared in laboratory; the resulting exuviae and the adult were fixed in 70% ethanol. The specimens are deposited in the Collection of Departamento Científico Entomología, Museo de La Plata, Argentina. Drawings were made with a net reticule.

RESULTS

Description of the last larval instar. *Head* (Fig. 1). Two times as wide as long. Posterolateral sides slightly concave. Posterior margin concave. Antennae 7–segmented, the 4th antennomere is the longest. Labium reaching caudad anterior margin of 2nd coxae; prementum (Fig. 3), almost 1.2 times as long as width, provided with 3+3 premental setae, (1 mm the longest). A row of spiniform setae present on the lateral sides of prementum. Labial



Figs 1-4. *Acanthagrion hildegarda* Gloger, male last larval instar. **1**, General dorsal view; **2**, Dorsal caudal lamellae, lateral view; **3**, Prementum and palps, dorsal view; **4**, Labial palp, dorsal view. Scale = 0.5 mm.

palp (Fig. 4) with five setae, distal margin divided into an outer denticular region with four or five small teeth and an inner region with three teeth and a curved endhook; movable hook slender and sharp, 1.3 times as long as distal margin. Mandibles (mandibular formula *sensu* Watson, 1956):

L 1+2 3 4 5 0 a b
R 1+2 3 4 5 y a

Thorax. Wing pads nearly parallel, the external reaching caudad the 4th abdominal segment. Femora with a subapical dark band and tibiae with a subbasal dark band.

Abdomen. Cylindrical; darkened from segment 5 to 10. Caudal lamellae (Fig. 2) lanceolate, six times as long as wide with apex acute; nodus located at 0.5 of its length, bearing one or two stout setae with protrusive bases; dorsal lamella with 33 antenodal setae dorsally, dorsal antenodal series 1.4 times longer than ventral series; lateral lamellae with 27 antenodal setae ventrally, ventral antenodal series 1.4 times longer than dorsal series; tracheation relatively closely branched with patches of closely branched and deeply pigmented tracheae.

Measurements (in mm). Body length (without caudal lamellae): aproximately 8.0; head maximum width: 2.4–2.6, head maximum length: 1.1–1.5; prementum maximum length: 1.6–2.2, prementum maximum width: 1.2–1.6; femur I length: 1.1–1.4, femur II: 1.5–1.8, femur III: 2.2–2.8; tibia I length: 1.5–1.9, tibia II: 1.6–2.0, tibia III: 2.0–2.7; internal wing pads length: 2.8–3.2, external: 2.7–3.0; abdomen total length: aprox. 5.2, abdominal segment IX mid-dorsal length: 0.5–0.6, abdominal segment X: 0.3–0.4, cerci: 0.3.

DISCUSSION

Based on the external morphology, the known last larval instars of *Acanthagrion* can be characterized as follows: body form slender; posterolateral margin of head variable, not produced and concave (*i.e., A. hildegarda, A. luteum,* and *A. quadratum*) or distinctly produced and angulated (*i.e., A. adustum* and *A. indefensum*); mandibles with four or five incisors and one or two molar teeth; distal margin of prementum produced, premental setae 1–3, palpal setae 4–5; caudal lamellae lanceolated, tips acuminate, as long as abdomen, nearly six times as long as wide, nodus located at 0.5 to 0.75 of its length, apex acute, and tracheation closely branched. The larva of *Acanthagrion hildegarda* resembles that of *A. luteum* and *A. quadratum* in body appeareance, shape of head, mandibles and labium, and shape, tracheation and color pattern of caudal lamellae; differing from them in the number of palpal and premental setae.

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